UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/575,232	04/07/2006	Frank Witte	03100296AA	6989

30743 7590 03/26/2010

WHITHAM, CURTIS & CHRISTOFFERSON & COOK, P.C.
11491 SUNSET HILLS ROAD
SUITE 340
RESTON, VA 20190

EXAMINER	
NGUYEN, QUANG	
ART UNIT	**PAPER NUMBER**
1633	

MAIL DATE	DELIVERY MODE
03/26/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/575,232	WITTE ET AL.	
	Examiner	Art Unit	
	QUANG NGUYEN, Ph.D.	1633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 January 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12,14,18 and 21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12,14, 18 and 21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Applicant's amendment filed on 1/4/2010 was entered.

Amended claims 1-12, 14, 18 and new claim 21 are pending in the present application, and they are examined on the merits herein.

Priority

The present application is a 371 of PCT/EP04/11287, filed on 10/08/2004, which claims benefit of the provisional application 60/509,942, filed on 10/10/2003, and the foreign application EPO 03022780.5, filed on 10/10/2003.

Upon review of the specifications of the provisional application 60/509,942 and the foreign application EPO 03022780.5, and comparison with the specification of the present application, it is determined that the instant claims are only entitled **to the effective filing date of 10/08/2004** because both the provisional application 60/077,262 and the foreign application EPO 03022780.5 do not have a written support for the concept of cultivating chondrocytes at unphysiologically high extracellular concentration of magnesium (Mg), wherein said unphysiologically high extracellular concentrations of Mg range up to 20 mM, and characterized in that at least once a first unphysiologically high extracellular Mg concentration is increased to a second unphysiologically high extracellular Mg concentration during cell cultivation which promotes proliferating chondrocytes to form chondrons.

Claim Objections

Claims 3 and 10 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. This is because the recited range of extracellular concentrations of Mg from about 12 mMol to about 65 mMol and of 11 to 25 mMol, in claims 3 and 10, respectively, is outside of the limitation "said unphysilogically high extracellular concentrations of Mg range up to 20 mM" recited in independent claim 1 from which both claims 3 and 10 are dependent on.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

An embodiment of claims 3 and 10 (unphysiolocally high extracellular concentrations of Mg outside the Mg concentration range recited in independent claim 1) are still rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a method for the generation of chondrons comprising the step of **cultivation of chondrocytes** at unphysiologically high extracellular concentrations of magnesium (Mg), characterized in that at least once an unphysiologically high extracellular Mg concentration is increased during the cultivation, and **wherein said high extracellular concentrations of Mg range up to 20 mM**;

does not reasonably provide enablement for **a method for the generation of chondrons using any other cells and/or at any other unphysiologically high extracellular concentrations of Mg as broadly claimed**. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention commensurate in scope with these claims for the same reasons already set forth in the Office action mailed on 4/01/2009 (pages 2-7).

Response to Arguments

Applicants' arguments related to the above rejection in the Amendment filed on 1/4/2010 (page 4) have been fully considered but they are moot because apart from an embodiment of claims 3 and 10 which recites unphysiolocally high extracellular concentrations of Mg outside the Mg concentration range recited in independent claim 1 (e.g., {Mg}> 20 mM), the above rejection was withdrawn for all other claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-2, 5 and 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Caruso (US 4,978,661) in view of Egerbacher et al. (Vet Pathol 38:143-148, 2001; Cited previously) for the same reasons already set forth in the Office action mailed on 4/01/2009 (pages 8-10). ***The same rejection is restated below.***

Within the scope of enablement, Caruso discloses a method of treating rheumatoid arthritis comprising administering to a patient, including intra-articularly injecting, a therapeutically effective amount of 6-halo-4-quinolone derivatives (see at least the abstract and issued claims). Caruso also teaches that the "**multilocal" intra-articular treatment** with 6-halo-4-quinolone derivatives induce at least the clinical remission of the early rheumatoid illness (col. 3, lines 60-68; col. 4, lines 1-6). Caruso further discloses that 6-halo-4-quinolone derivatives are already known in the art and they are described as antimicrobial agents useful in the treatment of urinary and respiratory infections (col. 2, lines 22-31).

Caruso did not teach a method of culturing chondrocytes in the presence of an unphysiologically high extracellular concentration of magnesium, and wherein at least

once the unphysicologically high extracellular Mg concentration is increased during the culture.

However, at the effective filing date of the present application Egerbacher et al already taught that **magnesium supplementation at 1X concentration (0.0612 mg/ml MgCl + 0.0488 mg/ml MgSO4 = 1mM MgCl + 0.4 mM MgSO4) or at 3X concentration (about 4.2 mM Mg) has a significantly positive or protective effect on quinoline-treated horse and dog chondrocytes in 5-day cultures, with more positive effects observed for a triple dose** (see at least the abstract; Figures 1-5; page 144, col. 1, second paragraph; and section titled "Magnesium supplementation"). Egerbacher et al further disclosed that the addition of Mg2+ slightly increased cell proliferation (53% for Mg1 and 55% for Mg3) with respect to cells cultivated in Mg2+-free medium (47%; see page 146, col. 1, second paragraph; Figure 6).

It would have been obvious for an ordinary skilled artisan to modify the teachings of Caruso by also intraarticularly injecting magnesium and maintaining magnesium (including repeated injections) at a concentration within a range of 1.4 mM to 4.2 mM for the arthritic joint of a patient treated with 6-halo-4-quinolone derivatives in light of the teachings of Egerbacher et al.

An ordinary skilled artisan would have been motivated to carry out the above modification because Egerbacher et al already showed at least protective effects of Mg supplementation at a concentration within a range of 1.4 mM and 4.2 mM for horse and dog chondrocytes against quinolones in tissue cultures, and that Mg2+ supplementation also slightly increased cell proliferation.

An ordinary skilled artisan would have a reasonable expectation of success in light of the teachings of Caruso and Egerbacher et al.; coupled with a high level of skill for an ordinary skilled artisan in the relevant art.

Therefore, the claimed invention as a whole was *prima facie* obvious in the absence of evidence to the contrary.

Response to Arguments

Applicants' arguments related to the above rejection in the Amendment filed on 1/4/2010 (pages 5-6) have been fully considered but they are respectfully not found persuasive for the following reasons.

Applicants argue basically that the Egerbacher reference does not overcome the defects of the primary Caruso reference in any way because Egerbacher teaches the use of a single level of Mg, and that is taught as used only with quinoloine-treated horse and dog chondrocytes. Egerbacher does not teach that cells which are cultivated at unphysiologically high extracellular concentrations of magnesium, should be subjected at least once to a change from an original or first unphysiologically high concentration to an even higher or second unphysiologicallly high concentration of Mg concentration (e.g., form 5 mM to 10 mM Mg). Egerbacher lacks any teaching or suggestion of an additional increasing step to convert the cells from the proliferation phase to the differentiation phase as demonstrated by the examples of the present patent application and as required in claim 1.

First, it appears that Applicants considered the teachings of Caruso and Egerbacher references in total isolation one from the other. Of course, please note that since the above rejection was made under 35 U.S.C. 103(a) neither the Caruso nor the Egerbacher reference has to teach every limitation of the instant claims.

Second, as written there is no recitation whatsoever about different chondrocyte cultivation phases such as the proliferation phase and the differentiation phase as argued by Applicants. The claims simply require the cultivation of chondrocytes in both in vitro and/or in vivo at unphysiologically high extracellular concentrations of Mg, in which a first unphysiological high extracellular Mg concentration is increased to a second unphysiologically high extracellular Mg concentration during cell cultivation, and wherein said unphysiologically high extracellular concentrations of Mg range up to 20 mM.

Third, as already stated in the above rejection it would have been obvious for an ordinary skilled artisan to modify the teachings of Caruso by also intraarticularly injecting magnesium and maintaining magnesium (including **repeated injections**) at a concentration within a range of 1.4 mM to 4.2 mM for the arthritic joint of a patient treated with 6-halo-4-quinolone derivatives because Egerbacher et al already showed at least protective effects of Mg supplementation at a concentration within a range of 1.4 mM and 4.2 mM for horse and dog chondrocytes against quinolones in tissue cultures, and that Mg2+ supplementation also slightly increased cell proliferation. By repeating intraarticular injecting magnesium to maintain a magnesium concentration of at least 1.4 mM in order to attain the protective effects taught by Egerbacher et, this step satisfies

the limitation "a first unphysiologically high extracellular Mg concentration is increased to a second unphysiologically high extracellular Mg concentration". Additionally, please note that Caruso teaches explicitly a treatment protocol that involves repeated injections (see at least col. 3, lines 60-68). Furthermore, it should also be noted that "a first unphysiologically high extracellular Mg concentration" could be an unphysiologically high extracellular Mg concentration at 1h, 3hrs, 5hrs, 12 hrs, 24 hrs, 48 hrs, 72 hrs...after an initial unphysiologically high extracellular concentration of Mg was injected.

Accordingly, claims 1-2, 5 and 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Caruso in view of Egerbacher et al. for the same reasons already set forth in the Office action mailed on 4/01/2009 (pages 8-10).

Claims 1-2, 4-9, 11-12, 14, 18 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Masuda et al. (US 2001/0012965) in view of Egerbacher et al. (Vet Pathol 38:143-148, 2001; Cited previously), Halvorsen et al. (US 6,841,150), and Lindenberg et al (US 2005/0239040). ***This is a modified rejection necessitated by Applicant's amendment to accommodate amended claims 11-12 and new claim 21.***

Within the scope of enablement, Masuda et al already disclose at least a method for producing a transplantatble cartilage matrix, comprising culturing isolated chondrogenic cells, including human adult articular chondrocytes and bovine chondrocytes, in alginate culture containing a stimulatory agent, such as fetal bovine

serum and/or exogenously added specific growth factors such as osteogenic protein-1, TGF-beta, insulin like growth factor, for an amount of time effective for allowing formation of a chondrogenic cell-associated matrix (see at least Summary of the Invention; and particularly paragraphs 33-40 and example 1).

Masuda et al did not teach a method of culturing isolated chondrogenic cells in the presence of unphysiologically high extracellular concentrations of magnesium, wherein at least once a first unphysiologically high extracellular Mg concentration is increased to a second unphysiologically high extracellular Mg concentration during the cell culture; and/or the cultured chondrocytes are differentiated from adult stem cells; and/or the cultivation is effected under an oxygen partial pressure of 8%.

However, at the effective filing date of the present application Egerbacher et al already taught that **magnesium supplementation at 1X concentration (0.0612 mg/ml MgCl + 0.0488 mg/ml MgSO4 = 1mM MgCl + 0.4 mM MgSO4) or at 3X concentration (about 4.2 mM Mg) has a significantly positive or protective effect on quinoline-treated horse and dog chondrocytes in 5-day cultures, with more positive effects observed for a triple dose** (see at least the abstract; Figures 1-5; page 144, col. 1, second paragraph; and section titled "Magnesium supplementation"). Egerbacher et al further disclosed that **the addition of Mg2+ slightly increased cell proliferation (53% for Mg1 and 55% for Mg3) with respect to cells cultivated in Mg2+-free medium** (47%; see page 146, col. 1, second paragraph; Figure 6).

Additionally, Halvorsen also disclosed at least a method for directing adipose-derived stromal cells cultivated *in vitro*, including in a calcium alginate or another

biocompatible lattice or matrix capable of supporting chondrogenesis in a three dimensional configuration, to differentiate into functional chondrocytes in conditions such as at temperatures between 31 ^{o}C to 37 ^{o}C in a humidified incubator, with a carbon dioxide content to be maintained between 2% to 10% and the oxygen content between 1% and 22% (see at least Summary of Invention; particularly col. 5, line 54 continues to line 7 of col. 6; col. 6, lines 61-65).

Moreover, at the effective filing date of the present application Lindenberg also taught an **in vittro culture method for obtaining a mature oocyte in which the oxygen tension, a cell culture parameter, is regulated via a temporal rise or a temporal decrease in oxygen tension in one or more times** (see at least the abstract and paragraphs 89-100,154-159).

It would have been obvious for an ordinary skilled artisan to modify the teachings of Masuda et al by also culturing and maintaining isolated chondrogenic cells (including a temporal rise in the extracellular Mg concentration in one or more times) in the presence of a high extracellular concentration of Mg ranging between 1.4 mM and 4 mM and/or using chondrocytes differentiated from adult stem cells as well as cultivating chondrocytes under an oxygen partial pressure of 8%, in light of the teachings of Egerbacher et al, Halvorsen et al and Lindenberg as discussed above.

An ordinary skilled artisan would have been motivated to carry out the above modification because Egerbacher et al already showed at least protective effects of Mg supplementation at a concentration within a range of 1.4 mM and 4.2 mM for horse and dog chondrocytes against quinolones in tissue cultures, and **that Mg2+**

supplementation also slightly increased cell proliferation. Additionally, Halvorsen et al already taught successfully a cultivation of adipose-derived stromal cells in a calcium alginate culture to differentiate into functional chondrocytes as well as culturing differentiated chondrocytes with an oxygen content between 1% and 22%. Furthermore, Lindenberg already taught at least a cell culture parameter such as the oxygen parameter can be regulated via a temporal rise or a temporal decrease in one or more times in a cell culture.

An ordinary skilled artisan would have a reasonable expectation of success in light of the teachings of Masuda et al, Egerbacher et al, Halvorsen et al and Lindenberg; coupled with a high level of skill for an ordinary skilled artisan in the relevant art.

Therefore, the claimed invention as a whole was *prima facie* obvious in the absence of evidence to the contrary.

Response to Arguments

Applicants' arguments related to the above rejection in the Amendment filed on 1/4/2010 (pages 6-7) have been fully considered but they are respectfully not found persuasive for the following reasons.

Once again, Applicants argue basically that the Egerbacher reference does not overcome the defects of the primary Masuda reference in any way because Egerbacher teaches the use of a single level of Mg, and that is taught as used only with quinoloine-treated horse and dog chondrocytes. Egerbacher does not teach that cells which are

cultivated at unphysiologically high extracellular concentrations of magnesium, should be subjected at least once to a change from an original or first unphysiologically high concentration to an even higher or second unphysiologicallly high concentration of Mg concentration (e.g., form 5 mM to 10 mM Mg). Egerbacher lacks any teaching or suggestion of an additional increasing step to convert the cells from the proliferation phase to the differentiation phase as demonstrated by the examples of the present patent application and as required in claim 1. The Halvorsen reference provides no teaching whatsoever of the significance of using higher than physiologically normal extracellular Mg concentrations, and in particular there is no teaching of shifting such a high extracellular Mg concentration to a still higher concentration during incubation in order to promote chondrocyte differentiation. Lindenberg reference does not deal with chondrocytes or with Mg concentrations in any way.

First, it appears that Applicants considered each of the cited references in total isolation one from the other. Of course, please note that since the above rejection was made under 35 U.S.C. 103(a) none of the cited references has to teach every limitation of the instant claims.

Second, once again there is no recitation whatsoever about different chondrocyte cultivation phases such as the proliferation phase and the differentiation phase as argued by Applicants. The claims simply require the cultivation of chondrocytes in both in vitro and/or in vivo at unphysiologically high extracellular concentrations of Mg, in which a first unphysiological high extracellular Mg concentration is increased to a second unphysiologically high extracellular Mg concentration during cell cultivation, and

wherein said unphysiologically high extracellular concentrations of Mg range up to 20 mM.

Third, as already stated in the above 103 rejection it would have been obvious for an ordinary skilled artisan to modify the teachings of Masuda et al by also culturing and maintaining isolated chondrogenic cells (including a temporal rise in the extracellular Mg concentration in one or more times) in the presence of a high extracellular concentration of Mg ranging between 1.4 mM and 4 mM, because Egerbacher et al already showed at least protective effects of Mg supplementation at a concentration within a range of 1.4 mM and 4.2 mM for horse and dog chondrocytes against quinolones in tissue cultures, and that **Mg2+ supplementation also slightly increased cell proliferation**. Additionally, Halvorsen et al already taught successfully a cultivation of adipose-derived stromal cells in a calcium alginate culture to differentiate into functional chondrocytes as well as culturing differentiated chondrocytes with an oxygen content between 1% and 22%. Furthermore, **Lindenberg already taught at least a cell culture parameter such as the oxygen parameter can be regulated via a temporal rise or a temporal decrease in one or more times in a cell culture**. The citation of the Halvorsen reference is to demonstrate that at the effective filing date of the present application, chondrocytes can be differentiated in a culture in vitro from an adipose-derived stromal cell (at least an adult stem cell; see limitation of claim 7) and that differentiated chondrocytes were cultured with an oxygen content between 1% and 22% (limitation of claim 12). The citation of the Lindenberg reference is to demonstrate that at the effective filing date of the present application at least a cell culture parameter such as

the oxygen parameter can be regulated via a temporal rise in one or more times in a cell culture; and accordingly in the combined teachings of Masuda et al, Egerbacher et al, Halvorsen et al and Lindenberg as set forth above, the desired unphysiologically high Mg concentrations can be similarly regulated.

Accordingly, claims 1-2, 4-9, 11-12, 14, 18 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Masuda et al. in view of Egerbacher et al., Halvorsen et al. and Lindenberg et al for the reasons set forth above.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Jeschke et al (US 2002/0052044) disclosed **culturing human chondrocytes with human serum**, as well as **cultivating alginate-encapsulated chondrocytes under an oxygen partial pressure of 20% or less (e.g., 0.5 to 20%)** (paragraphs 7-13).

Conclusion

No claim is allowed.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quang Nguyen, Ph.D., whose telephone number is (571) 272-0776.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's SPE, Joseph T. Woitach, Ph.D., may be reached at (571) 272-0739.

To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Group Art Unit 1633; Central Fax No. (571) 273-8300.

Patent applicants with problems or questions regarding electronic images that can be viewed in the Patent Application Information Retrieval system (PAIR) can now contact the USPTO's Patent Electronic Business Center (Patent EBC) for assistance. Representatives are available to answer your questions daily from 6 am to midnight (EST). The toll free number is (866) 217-9197. When calling please have your application serial or patent number, the type of document you are having an image problem with, the number of pages and the specific nature of the problem. The Patent Electronic Business Center will notify applicants of the resolution of the problem within 5-7 business days. Applicants can also check PAIR to confirm that the problem has been corrected. The USPTO's Patent Electronic Business Center is a complete service center supporting all patent business on the Internet. The USPTO's PAIR system provides Internet-based access to patent application status and history information. It also enables applicants to view the scanned images of their own application file folder(s) as well as general patent information available to the public.

/QUANG NGUYEN/
Primary Examiner, Art Unit 1633